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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**In re U.S. Patent Application of**

**KUROKAWA et al.**

**Application Number: 10/765,098**

**Filed: January 28, 2004**

**For: STORAGE SYSTEM WITH  
A DATA SORT FUNCTION**

**Attorney Docket No. WILL.0003**

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)  
) **Tech Center 2100**  
)  
) **Special Program Examiner**  
) **Pinchus M. Laufer**  
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**Honorable Assistant Commissioner  
for Patents  
Washington, D.C. 20231**

**COVER LETTER**

Sir:

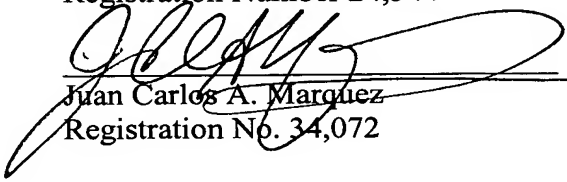
The below-identified communications are submitted in the above-captioned application or proceeding:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Renewed Petition to Make Special under 37 CFR §1.102(d) for Accelerated Examination | <input type="checkbox"/> Terminal Disclaimer                 |
| <input type="checkbox"/> Substitute Specification   | <input type="checkbox"/> Information Disclosure Statement    |
| <input type="checkbox"/> Assignment   | <input type="checkbox"/> Statements & Pre-exam search report |

- [ ] Please charge my **Deposit Account Number** \_\_\_\_\_ in the amount of \_\_\_\_\_ to cover the fees for \_\_\_\_\_. A duplicate copy of this paper is enclosed.
- [ ] A check in the amount of \$ \_\_\_\_\_ to cover the fee is enclosed.
- [ x ] The Commissioner is hereby authorized to charge any additional fees associated with this communication, or credit any overpayment to **Deposit Account Number 08-1480**.

Respectfully submitted,

\_\_\_\_\_  
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**May 11, 2005**



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

<b>In re U.S. Patent Application of</b>	)	
<b>KUROKAWA et al.</b>	)	
<b>Application Number: 10/765,098</b>	)	<b>Tech Center 2100</b>
<b>Filed: January 28, 2004</b>	)	<b>Special Program Examiner</b>
<b>For: STORAGE SYSTEM WITH</b>	)	<b>Pinchus M. Laufer</b>
<b>A DATA SORT FUNCTION</b>	)	
<b>Attorney Docket No. WILL.0003</b>	)	

**RENEWED PETITION**

Sir:

This is in response to the Decision on Petition under MPEP 708.02 mailed on April 28, 2005 and the telephone conversation with the Examiner on May 2, 2005. The period of response for the Decision is set to expire on June 28, 2005. The Petition To Make Special Under 37 C.F.R. § 1.102(d) For Accelerated Examination was denied on the grounds of lacking a detailed discussion regarding claim 10, and for lacking a detailed discussion regarding U.S. Patent Numbers 5,343,427 (Teruyama), 5,652,857 (Shimoi et al.), 5,860,083 (Sukegawa), 6,230,220 (Cohen et al.), 6,571,244 (Larson), U.S. Patent Application Numbers 2004/0098538 (Horn et al.) and 2004/0205303 (Naveh et al.), and Japanese Patent Number 10078967 (Ishiai).

After reviewing the references included in the Petition, Applicants respectfully submit that only U.S. Pat. App. Pub. Nos. 2004/0039869 (Kurokawa et al.), 2003/0061407 (Kurokawa et al.), 2003/0163457 (Yano et al.), 2002/0065793 (Arakawa et al.), US Pat. No. 6,424,970 (Arakawa et al.), and U.S. Pat. App. Pub. No. 2004/0098543 (Araki et al.) are deemed most closely related to the invention. The remaining references U.S. Pat. Nos. 5,343,427 (Teruyama), 5,652,857 (Shimoi et al.),

5,860,083 (Sukegawa), 6,230,220 (Cohen et al.) and 6,571,244 (Larson), U.S. Pat. App. Pub. Nos 2004/0098538 (Horn et al.) and 2004/0205303 (Naveh et al.), and Japanese Patent Number 10078967 (Ishiai) are not closely related to the invention, but only provide technological background and/or to show the state of the art of a storage system having external storage devices, physical devices storing data, and sorting processes. As such, Applicants respectfully omitted detailed discussions regarding U.S. Patent Numbers 5,343,427 (Teruyama), 5,652,857 (Shimoi et al.), 5,860,083 (Sukegawa), 6,230,220 (Cohen et al.) and 6,571,244 (Larson), U.S. Patent Application Numbers 2004/0098538 (Horn et al.) and 2004/0205303 (Naveh et al.), and Japanese Patent Number 10078967 (Ishiai).

The detailed discussion of the references closely related to the invention regarding claim 10 is being provided as follows:

U.S. Patent Application Number 2004/0039869 of **Kurokawa et al.** is assigned to Hitachi Ltd. and entitled "Information Processing System." **Kurokawa's** information processing system (Fig. 1) includes a host processing device 10, an external storage device 13 that uses one or more physical devices 131 to store data that are subjects of input/output requests from the host processing device 10, and a control device 12 intervening between the host processing device 10 and the external storage device 13 and that controls data receiving and sending. However, **Kurokawa** is silent about any sorting operation such that **Kurokawa's** control device 12 does not have "one or more processors which receive sort processing execution instructions from said host devices and perform sort processing" as now recited in claim 10. As such, **Kurokawa's** control device 12 does not have "one or more processors perform sort processing in which a first storage area in said external storage device is selected as a sort-in area, a second

storage area in said external storage device or said shared memory is selected as a sort-work area, a third storage area in said external storage device is selected as a sort-out area, the data of said sort-in area is sorted using said sort-work area, and the sorted data is stored in said sort-out area” as now recited in claim 10. U.S. Patent Application Numbers 2003/0061407 of Kurokawa et al. shares the same deficiencies.

U.S. Patent Application Number 2003/0163457 of **Yano** et al. is assigned to Hitachi Ltd. and entitled “Storage System.” **Yano**’s storage system includes a plurality of storage physical devices 102-106, means for controlling access to the plurality of storage physical devices 102-106, an interface respectively provided between a host device 114 or 115 and the storage physical devices 102-106, and setting means for selecting a specific storage physical device from the plurality of storage physical devices, based on predetermined conditions and placing data blocks therein. The cache memory 111 temporarily stores therein data written from each host device 114 or 115 to carry out an access process from the host device 114 or 115 at high speed, or stores therein data read immediately before. However, **Yano** is silent about any sorting operation such that **Yano**’s disk controller 109 does not have “one or more processors which receive sort processing execution instructions from said host devices and perform sort processing” as now recited in claim 10. As such, **Yano**’s processor 110 does not “perform sort processing in which a first storage area in said external storage device is selected as a sort-in area, a second storage area in said external storage device or said shared memory is selected as a sort-work area, a third storage area in said external storage device is selected as a sort-out area, the data of said sort-in area is sorted using said sort-work area, and the sorted data is stored in said sort-out area” as now recited in claim 10.

U.S. Patent Application Number 2002/0065793 of **Arakawa** et al. is assigned to Hitachi Ltd. and entitled "Sorting System And Method Executed By Plural Computers For Sorting And Distributing Data To Selected Output Nodes." **Arakawa's** sorting system (Fig. 1) includes a plurality of input nodes/computers 100 (Abstract); one output node 300; and a shared external storage 500 unit connected between each of the input units 100 and the output unit 300, wherein, each of the input units 100 for sorting a input local disk 200 therein comprises a first buffer 110; means for storing sorting target data in the first buffer 100; means for internally sorting data in the first buffer 100 in accordance with a predetermined sorting rule; and means for storing as a sorted string an internally sorted result in the shared external storage unit 500. In short, **Arakawa** has a two-level sorting scheme: In level I, each of the input units 100 sorts data in its input local disk 200 thereby processing in parallel all input data in a plurality of computers (nodes) to shorten processing time (Abstract). In level II, the output node 300 reads the sorted string from the shared disk 500 and merges it and outputs a whole sorted result of all input data to an output local disk 400. Each of **Arakawa's** input units 100 sorts independently. **Arakawa** has shared disk 500 and shared output node/computer 300, but *not* a shared storage control device 12 connecting between host devices 1 and an external storage device 11 for coordinating its plurality of processors with shared memory 122, 123 thereby performing an one-level sorting scheme. **Arakawa** simply does not provide such a "storage control device 12 having shared memory which can be used for different prescribed purposes and a control portion which is connected to said host devices, said external storage device, and said shared memory, and controls data input to and output from said external storage device, said host devices, and said shared memory" as now recited in claim 10. In addition, **Arakawa's** input node CPUs 101 are

not “perform sort processing in which a first storage area in said external storage device is selected as a sort-in area, a second storage area in said external storage device or said shared memory is selected as a sort-work area, a third storage area in said external storage device is selected as a sort-out area, the data of said sort-in area is sorted using said sort-work area, and the sorted data is stored in said sort-out area” as now recited in claim 10. US Pat. No. 6,424,970 to Arakawa et al. shares the same deficiencies.

U.S. Patent Application Number 2004/0098543 of **Araki** et al. is assigned to Hitachi Ltd. and entitled “Storage System.” **Araki** (Fig. 1) shows storage system coupled to a plurality of host processors 10 and service equipment 13. The storage system includes an external storage device 14 and a control unit 12 for controlling transfer of information between the host processors 10 and the external storage device 14. The system includes host adaptors 122, which write the received data in the cache memory 121 and send a write command end message indicating completion of the write request to the host processor 10. The disk adaptors 123 transfer the data stored temporarily in the cache memory 121 to the logical device 143 to be written at a location indicated by the write request. However, **Araki** is silent about any sorting operation such that **Araki**’s control unit 12 does not have “one or more processors which receive sort processing execution instructions from said host devices and perform sort processing” as now recited in claim 10. As such, **Araki**’s control unit 12 does not have “one or more processors perform sort processing in which a first storage area in said external storage device is selected as a sort-in area, a second storage area in said external storage device or said shared memory is selected as a sort-work area, a third storage area in said external storage device is selected as a sort-out area, the data of said sort-in area

is sorted using said sort-work area, and the sorted data is stored in said sort-out area" as now recited in claim 10.

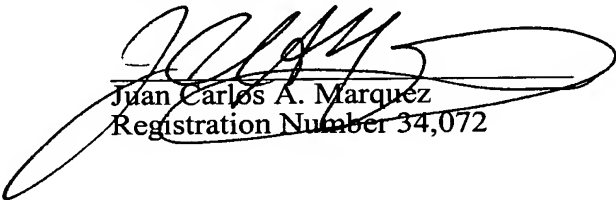
Applicants hereby request reconsideration of the above-referenced petition in view of the above-mentioned supporting information, specifically, in accordance with the requirements set forth in the Decision on Petition under MPEP 708.02.

In view of the above discussion, Applicants respectfully submit that all formal requirements for acceptance of this application for consideration on the merits have been completed. Applicants request that this petition thereby be granted so as to accept this application as complete for consideration on the merits, that an Official Filing Receipt be issued for this application and that the application be forwarded to the appropriate examining group.

The Commissioner is authorized to charge any additional fees necessary or to refund any overpayment to Deposit Account Number 08-1480 for furnishing this Further Supplement to the Petition.

Respectfully submitted,

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**May 11, 2005**

SPF/JCM/JT